

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of detecting peroxide-based explosive in a sample suspected of ~~consisting of or~~ comprising such explosive, which method comprises \_\_\_\_\_ dissolving said sample in a suitable organic solvent, \_\_\_\_\_ contacting the solution with an aqueous solution of a strong acid capable of decomposing said explosive to release hydrogen peroxide, and \_\_\_\_\_ contacting the resulting mixture with a peroxidase enzyme, a buffer to adjust the pH to such permitting action of the peroxidase enzyme and a substrate capable of being oxidized by the oxidant under the catalysis of the peroxidase enzyme to produce a pronounced change in a measurable physical parameter of the substrate.

2. (original) A method according to claim 1, wherein said physical parameter of the substrate is its colour or colour intensity.

3. (previously Amended) A method according to Claim 1 or 2, wherein the solvent is selected from the group

consisting of lower alkanols, dimethylsulfoxide, N, N-dimethylformamide, carboxylic acids, especially acetic acid and trifluoroacetic acid, and sulfonic acids.

4. (original) A method according to claim 3, wherein the organic solvent is acetic acid.

5. (previously Amended) A method according to Claim 1, wherein the strong acid is selected from the group consisting of  $\text{H}_2\text{SO}_4$ ,  $\text{HCl}$ ,  $\text{HBr}$ ,  $\text{HClO}_4$ ,  $\text{H}_3\text{PO}_2$ ,  $\text{H}_3\text{PO}_3$ ,  $\text{H}_3\text{PO}_4$  and  $\text{HNO}_3$ .

6. (original) A method according to claim 5, wherein the strong acid is  $\text{H}_2\text{SO}_4$ .

7. (currently amended) A method according to claim 6, wherein the concentration of the aqueous  $\text{H}_2\text{SO}_4$  solution is from about 5% to 95%, ~~preferably from about 10% to about 50% by volume.~~

8. (previously Amended) A method according to Claim 1, wherein the pH is adjusted by said buffer to about 5.0 to about 9.0.

9. (previously Amended) A method according to Claim 8, wherein the buffer is about 0.01 to 0.5 M citrate/phosphate buffer.

10. (previously Amended) A method according to Claim 1, wherein the peroxidase enzyme is Horseradish peroxidase.

11. (previously Amended) A method according to Claim 2, wherein the substrate is selected from the group consisting of 2,2'-azino-bis(3-ethylbenzthiazoline-6-sulfonic acid) diammonium salt, 2, 7-diaminofluorene, 3,3',5,5'-tetramethylbenzidine and its dihydrochloride salt, 5-aminosalicylic acid, o-phenylenediamine and its dihydrochloride salt, 5-amino-2,3-dihydro-1,4-phthalazinedione, 3-amino-9-ethylcarbazole, 4-chloro-1-naphthol, 3,3'-diaminobenzidine, o-dianisidine and its dihydrochloride salt, guaiacol and pyrogallol.

12. (previously Amended) A method according to Claim 1, wherein the sample is introduced into a mixture of the organic solvent and the aqueous solution of the strong acid.

13. (previously Amended) A method according to Claim 1, wherein the peroxidase enzyme is combined with the buffer prior to being contacted with said resulting mixture.

14. (previously Amended) A method according to Claim 1, wherein the buffer is combined with the substrate prior to being contacted with said resulting mixture.

15. (previously Amended) A method according to Claim 1, wherein said resulting mixture is contacted with a combination of the buffer, the peroxidase enzyme and the substrate.

16. (currently amended) A method of detecting peroxide-based explosive in a sample suspected of ~~consisting~~  
~~of or~~ comprising such explosive, which method comprises  
          introducing said sample into a mixture of an organic solvent and an aqueous solution of a strong acid capable of decomposing said explosive to release hydrogen peroxide, and  
          contacting the resulting mixture with a solution comprising a peroxidase enzyme, a buffer to adjust the pH to such permitting action of the peroxidase enzyme and a substrate capable of being oxidized by the oxidant under the catalysis of the peroxidase enzyme to produce a pronounced change in the colour of the substrate or its colour intensity.

17. (original) A method according to claim 16, wherein the organic solvent is acetic acid.

18. (original) A method according to claims 16 or 17, wherein the strong acid is aqueous sulfuric acid.

19. (previously Amended) A method according to Claim 16, wherein the peroxidase enzyme is Horseradish peroxidase.

20-32. (canceled)

33. (new) A method according to claim 7, wherein said concentration of aqueous  $H_2SO_4$  solution is about 10% to about 50% by volume.